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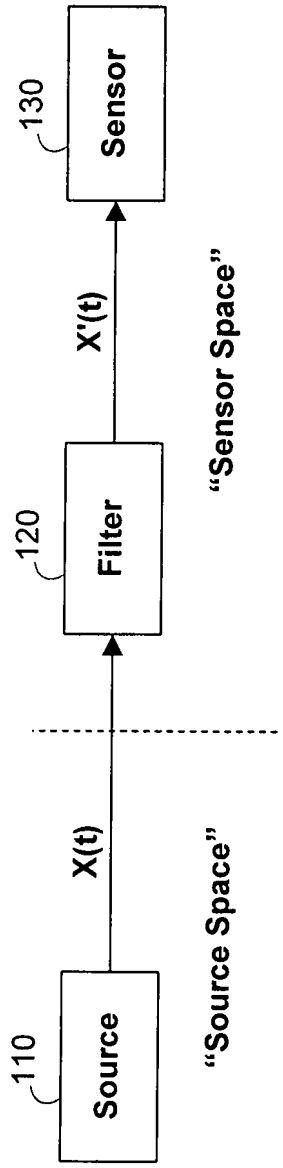
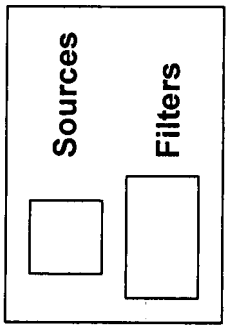


FIG. 1



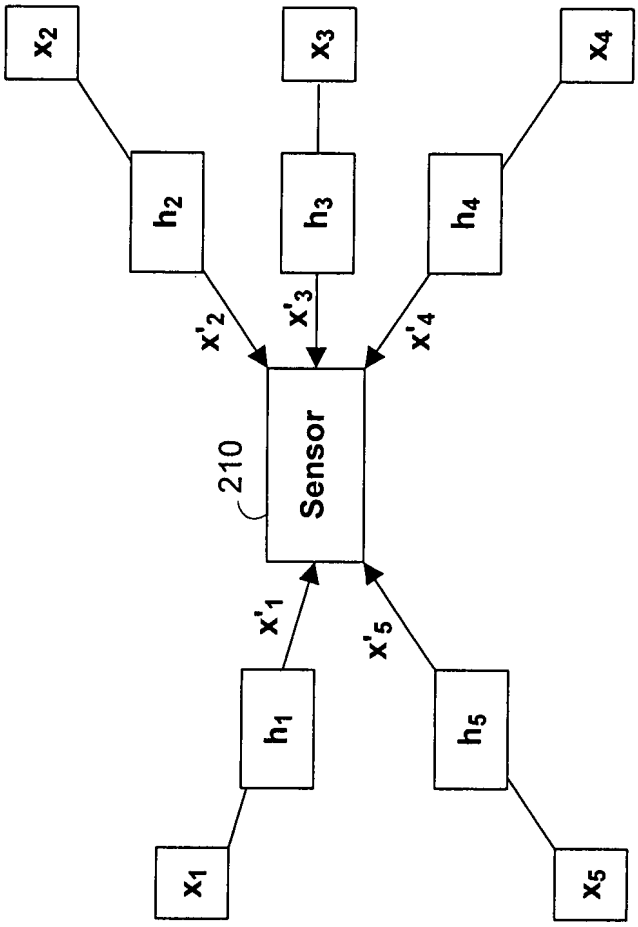


FIG. 2

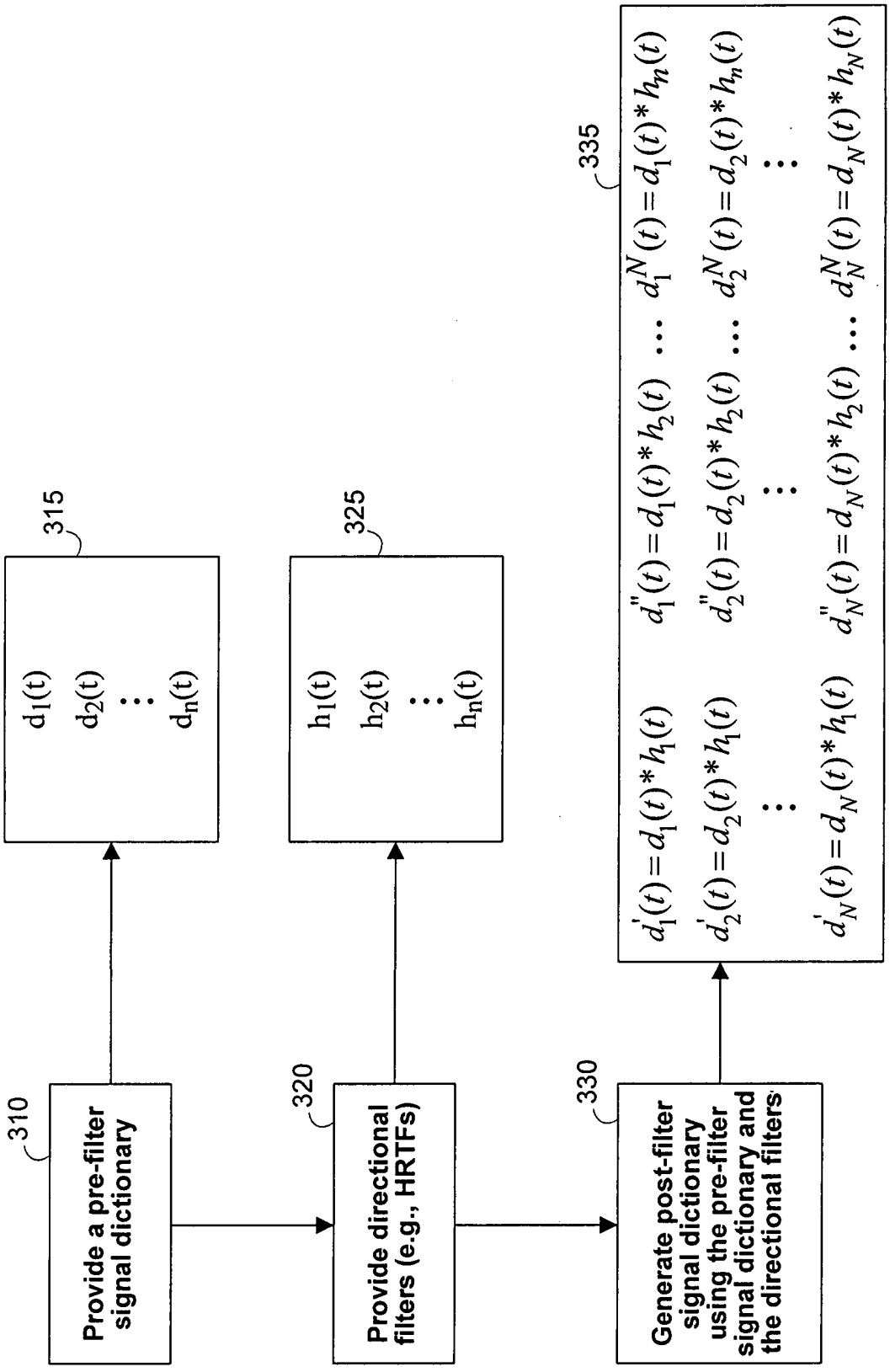

310
Provide a pre-filter signal dictionary
315
$d_1(t)$ $d_2(t)$ ⋮ $d_n(t)$
320
Provide directional filters (e.g., HRTFs)
325
$h_1(t)$ $h_2(t)$ ⋮ $h_n(t)$
330
Generate post-filter signal dictionary using the pre-filter signal dictionary and the directional filters
335
$d_1'(t) = d_1(t) * h_1(t)$ $d_1''(t) = d_1(t) * h_2(t)$ ... $d_1^N(t) = d_1(t) * h_n(t)$
$d_2'(t) = d_2(t) * h_1(t)$ $d_2''(t) = d_2(t) * h_2(t)$ ... $d_2^N(t) = d_2(t) * h_n(t)$
⋮ ⋮ ⋮
$d_N'(t) = d_N(t) * h_1(t)$ $d_N''(t) = d_N(t) * h_2(t)$ ... $d_N^N(t) = d_N(t) * h_N(t)$

FIG. 3

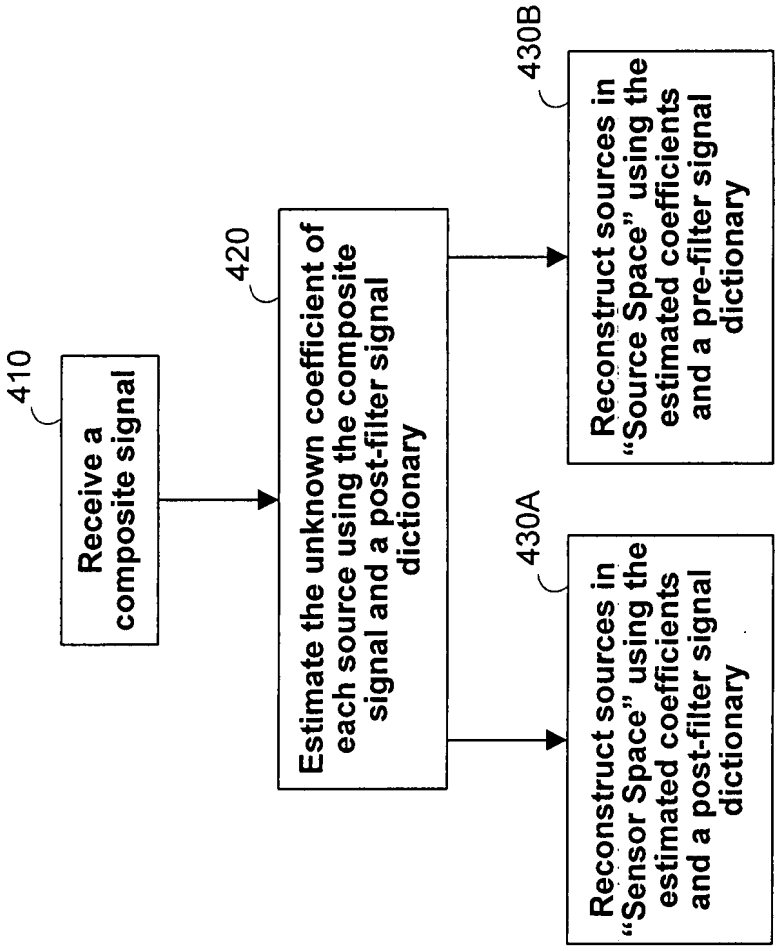

410
Receive a composite signal
420
Estimate the unknown coefficient of each source using the composite signal and a post-filter signal dictionary
430A
Reconstruct sources in "Sensor Space" using the estimated coefficients and a post-filter signal dictionary
430B
Reconstruct sources in "Source Space" using the estimated coefficients and a pre-filter signal dictionary

FIG. 4

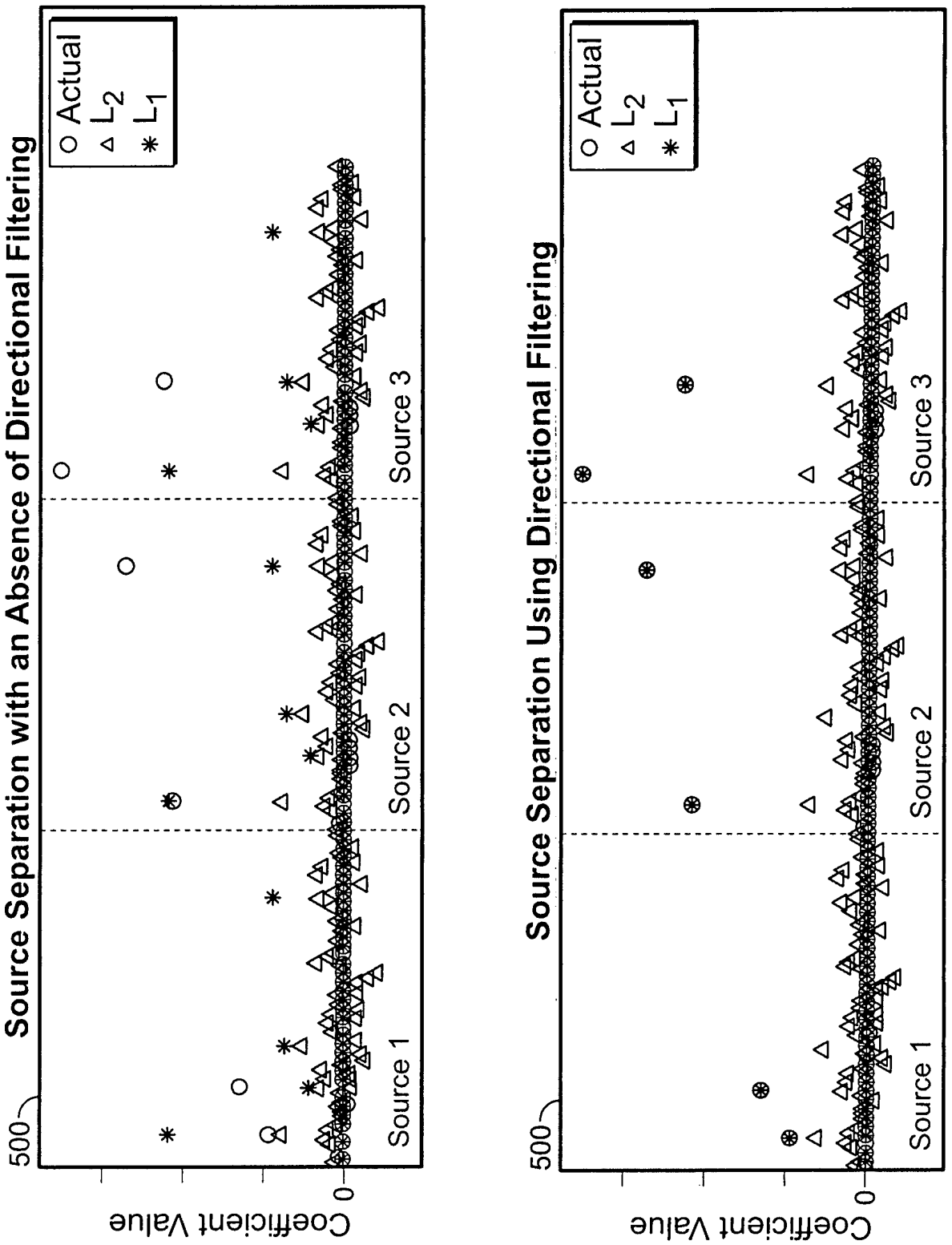

Source Separation with an Absence of Directional Filtering
Actual
L_2
L_1
500
0
Coefficient Value
Source 1
Source 2
Source 3
Source Separation Using Directional Filtering
Actual
L_2
L_1
500
0
Coefficient Value
Source 1
Source 2
Source 3

FIG. 5

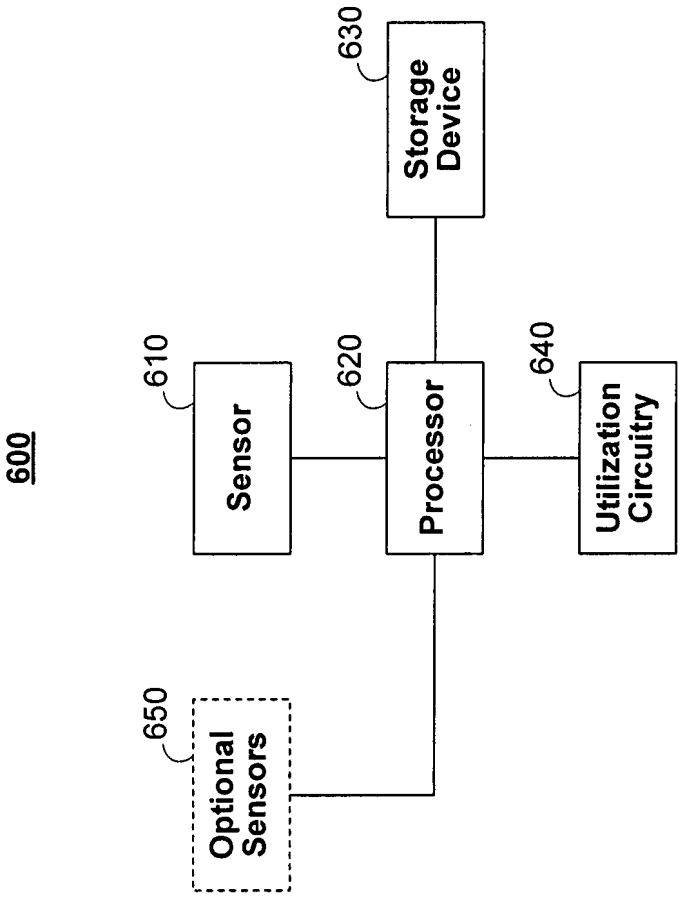

600
610
Sensor
620
Processor
630
Storage Device
640
Utilization Circuitry
650
Optional Sensors

FIG. 6